

**Lindeman Lake, British Columbia, Type Locality of
Zonitoides randolphi Pilsbry**

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Records of non-marine mollusks in western Canada are few but much repeated throughout the literature. Such is the case with Lindeman (or erroneously "Linderman") Lake, which is the northernmost locality (Bequaert & Miller, 1973) of *Discus shimckii* (Pilsbry, 1890) and the type locality of *Zonitoides randolphi* Pilsbry, 1898, a junior subjective synonym of *D. shimckii* according to Pilsbry (1948). Additionally, Lindeman Lake is cited elsewhere by Dall (1905), Baker (1911), Pilsbry (1948), and Clench & Turner (1962) in connection with this and other species of terrestrial and aquatic mollusks. A series of locality placements which were either imprecise or clearly wrong has most recently moved Lindeman Lake to the Yukon Territory (Bequaert & Miller, 1973).

The first appearance in the malacological literature of Lindeman Lake, as "Linderman Lake, Alaska," dates from the description of *Z. randolphi* by Pilsbry (1898); he may have assumed that the locality was in Alaska, or perhaps had been misinformed otherwise. The collector of the new species was P. B. Randolph of Seattle who published (1899) a brief popular account of his travels to the Klondike in 1897-1898. Randolph traveled north up the coast by ship and overland from Dyea, Alaska, via the Chilkoot Pass to the Yukon. Lindeman Lake was a stop en route on the Canadian side of the Chilkoot Pass; Randolph (1899:109) wrote:

We laid over one day at Lake Linderman [sic], resting from the past week's hard work, and I had time to hunt over the flat at the head of the lake where a small stream empties in.

Z. randolphi was among the species of terrestrial mollusks collected at Lindeman. However, nowhere in Randolph's account is the location of the lake ever stated.

Dall (1905:43) was the first to publish a correction to the earlier errors of Pilsbry and gave the locality as "Lake Lindeman, headwaters of the Yukon, British America." Most subsequent authors, including Pilsbry (1948), followed Dall who was essentially correct. (Canada was "British America" at that time.) However, more recently Bequaert & Miller (1973:57) placed Lindeman Lake in the Yukon Territory, "at the head of the Yukon River, ca. 64°30'N, 140°50'W," perhaps not realizing that the headwaters of the river system are in northwest British Columbia. The coordinates given by Bequaert & Miller are clearly erroneous.

Thus, the type locality of *Z. randolphi* and all other references to the locality should be corrected to read Lindeman Lake, British Columbia, Canada. The terminus of the Chilkoot Trail at the south end of Lindeman Lake is at ca. 59°47'N, 135°05'W (Energy, Mines and Resources

Canada, 1984). The small stream mentioned by Randolph (1899) could either be one of the branches of Lindeman Creek or a smaller, unnamed creek to the east.

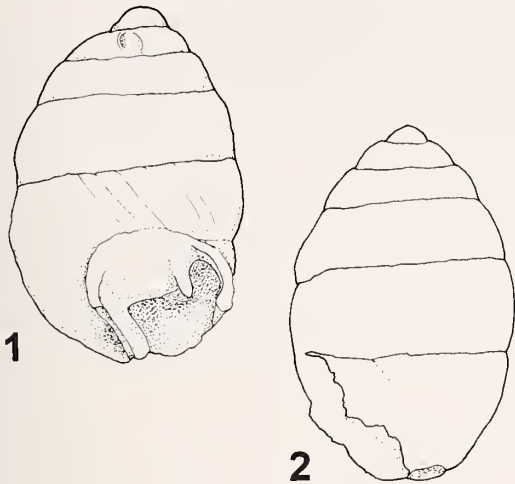
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**A New Species of *Gastrocopta*
(Gastropoda: Pulmonata: Pupillidae) from the
Deep River Formation, Late Oligocene or Early
Miocene, Montana**

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Roth & Emberton (1994) described an assemblage of land snail fossils from the Deep River Formation, continental deposits ranging from early Oligocene (Chadronian) to middle Miocene (Barstovian) age (Rensberger, 1981; Runkel, 1986), exposed in isolated outcrops in the Smith River Basin between White Sulphur Springs and Fort Logan, Meagher County, Montana. Based on the climatic signatures of extant genera, Roth & Emberton (1994) inferred a mesic climate with at least 75 cm/yr precipitation. In that paper, the present species was identified as *Gastrocopta* sp., aff. *G. armifera* (Say, 1821). Additional study of the material permits its description here as a new species.



Figures 1 and 2

Gastrocopta abyssiflumina Roth, sp. nov. Holotype, SBMNH 110599. Apertural and lateral views. Height 3.57 mm.

PUPILLIDAE Turton, 1831

Gastrocopta Wollaston, 1878

Type-species: *Pupa acarus* Benson, 1856; subsequent designation by Pilsbry (1916).

Gastrocopta abyssiflumina Roth, sp. nov.

(Figures 1, 2)

Gastrocopta sp., aff. *G. armifera* (Say), Roth & Emberton, 1994: 94.

Diagnosis: A large, broadly ovate *Gastrocopta* with 5.8–6.0 flattened whorls; suture appressed; base umbilicate, produced and compressed; inner end of angulo-parietal lamella curving toward periphery.

Description: Shell broadly ovate, widest above middle of body whorl; apical angle approximately 90°; base narrowly umbilicate, somewhat produced, tapering and compressed. Whorls 5.8 to 6.0 at maturity, with inconspicuous, raised, retractive growth lines; early whorls moderately convex; later whorls more flattened; suture appressed. Body whorl not strongly constricted behind aperture; crest absent. Aperture roughly triangular, acute at anterior end; parietal callus effuse, extending well onto face of body whorl. Strong angulo-parietal lamella present, inner end curving toward periphery; palatal and columellar lamellae not detected.

Dimensions: Holotype, height 3.57 mm; diameter 2.24 mm; height of body whorl 2.01 mm; whorls 6.75. Paratypes, height 3.15–3.99 mm (mean 3.63; n = 11); diameter 1.90–2.51 mm (mean 2.35; n = 12); height:diameter

ratio 1.34–1.80 (mean 1.55; n = 11); whorls 5.8–6.0 (mean 5.94, n = 8).

Type material: Holotype, Santa Barbara Museum of Natural History, SBMNH 110599, MONTANA: Meagher County: approximately 19 km northwest of White Sulphur Springs, 0.4–0.8 km east of White Sulphur Springs-Fort Logan road, in steep, bare north wall of small, meandering gully tributary to Rabbit Creek; sec. 14, T. 10 N, R. 5 E, Hanson Reservoir Quadrangle (USGS 7.5 Minute Series, Topographic, ed. 1971). Deep River Formation, late Oligocene or early Miocene. S. Stillman Berry et al. coll. 24 August 1941.

Paratypes (all from same locality as holotype): SBMNH 110298 (2 specimens), A. C. Silberling coll. 21 October 1940. SBMNH 110299 (10 specimens), A. C. Silberling coll. 21 October 1940, and S. Stillman Berry et al. coll. 24 August 1941; SBMNH 111989 (2 specimens), collector not stated, 28 August 1954.

Referred material: In addition to the type material, 15 specimens from the Berry collection are not designated as types because they are poorly preserved or imperfectly labeled as to locality.

Remarks: The type locality of *Gastrocopta abyssiflumina* is the same as that of *Euchemotrema occidaneum* Roth & Emberton, 1994, and *Hendersonia stillmani* Roth & Emberton, 1994, and probably equivalent to the Spring Creek 1 locality of Rensberger (1981). The presence of *Pupoides montana* Pierce, 1992, in the molluscan assemblage from this locality (Roth & Emberton, 1994) suggests correlation with the Cabbage Patch Beds in western Montana (Pierce & Rasmussen, 1992), of Arikareean age. *Gastrocopta abyssiflumina* is not among the Pupillidae reported from the Cabbage Patch Beds: it is substantially larger than *G. obesa*, *G. oviforma*, *G. tavnerensis*, *G. leonardi*, and *G. minuscula* (all, Pierce in Pierce & Rasmussen, 1992) and has less impressed sutures than any of them. It is relatively broader than *G. russelli* Pierce, 1992 (height:diameter ratio 1.34–1.80 compared to 1.64–1.92 for *G. russelli*), with more tapering anterior end and flatter whorls; the inner end of the angulo-parietal lamella curves toward the periphery rather than toward the columella.

Etymology: L., *abyssus* (deep, bottomless) + *flumen, fluminis* (stream): of the Deep River Formation.

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